

REMARKS

For the Examiner's convenience and reference, Applicants' remarks are presented in the order in which the corresponding issues were raised in the Office Action.

General Considerations

Applicants note that the remarks and amendment presented herein have been made merely to clarify the claimed embodiments from elements purported by the Office Action to be taught by the cited reference. Such remarks should not be construed as acquiescence, on the part of the Applicants, as to the purported teachings or prior art status of the cited references, nor as to the characterization of the cited references advanced in the Office Action. Accordingly, Applicants reserve the right to challenge the purported teaching and prior art status of the cited references at any appropriate time.

Claim Rejections under 35 U.S.C. §103

Claims 1-2, 7, 17, 25 and 28 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 6,509,733 issued to Buchwald, et al. ("Buchwald"). Applicants respectfully disagree with the rejection for the following reasons.

It is noted at the outset that in order to establish a *prima facie* case of obviousness, an office action must demonstrate that the prior art references when combined must teach or suggest all of the limitations of a claim. Second, there must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or combine the teachings of the references, and that there must be a reasonable expectation of success or that it must have been obvious to make the combination. [See MPEP §2143]

In rejecting claim 1, the Office Action looks to Buchwald as teaching all limitations of that claim except for *a phase interpolator to change a phase of the recovered clock signal with an analog transition based upon a combination of amplitude contributions from more than*

one phase of a reference clock signal, where the amplitude contributions are weighted in accordance with the interrelated control signals. [See the Office Action at page 4, last full paragraph] However, the Office Action only refers to column 9 and Fig .3 of Buchwald, without explaining where it is taught or suggested that *the phase interpolator change a phase of the recovered clock signal with an analog transition based upon a combination of amplitude contributions from multiple reference clock signals ...*

Although it is true that in Buchwald, a phase interpolator 306 produces timing/sampling signal 208 and a second timing/sampling signal 344 based on a reference signal set 206 and a number of digital phase control signals 340, the transitions between phases in the sampling signals are in discrete steps, rather than analog transitions. See also Buchwald, column 16, lines 11-36 in connection with Fig. 11, where a scaling module is described as receiving binary control signals 822 where each signal can have a value of 1 or 0, to enable or disable the flow of current 1128 through each conversion module 904. The conversion module 904 thus either converts or does not convert the reference signal into a component signal. See also, column 16, lines 30-36, "As described above, the phase interpolator 801 implementation of Fig. 9 is capable of producing eight different phases for control signal 826 at a granularity of 45°. However, the present invention may achieve finer phase granularity through implementations where each control signal 822 is capable of having more than two distinct values." In other words, to change the phase of the output of the phase interpolator 306 in Buchwald, a change in the digital phase control signal 340 results in a discrete or step change in the output phase. This does not teach or suggest a phase interpolator that can *change the phase of a recovered clock signal with an analog transition*.

As discussed above, the burden is on the Patent Office to make a *prima facie* case of unpatentability, which includes showing that the prior art references teach or suggest all of the claim limitations. Since the phase interpolator of Buchwald does not teach or suggest one that makes changes to its output phase with analog transition, Applicants respectfully request that the rejection of claim 1 be withdrawn.

All other independent claims that are pending are submitted as also being not obvious in view of Buchwald, for at least the reasons given above in support of claim 1.

As to any dependent claims, these are submitted as also being not obvious for at least the reasons given in support of their base claims.

It is noted that the claim amendments here are not done for purposes of patentability, but rather to claim certain embodiments of Applicants' invention without introducing any new matter. All claim amendments are fully supported by the Specification as filed.

CONCLUSION

In view of the foregoing, Applicants assert that the claims are in condition for allowance. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's amendment, the Examiner is requested to contact the undersigned.


If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on January 19, 2006.


Margaux Rodriguez January 19, 2006